

Aqueous Fire-Fighting Foam (AFFF) Collection & Disposal Program

Environmental Impact Statement Overview

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Interactive EIS

This interactive site provides an overview of the Final Environmental Impact Statement (EIS) for the AFFF Collection and Disposal Program.

The EIS does not approve or deny a proposed project. Ecology management will use the EIS to determine and select the preferred disposal option.

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Background and Program History

What are PFAS?

Per- and poly-fluoroalkyl substances (PFAS) are a large family of over 9,000 human-made chemicals that have been widely used in industry and consumer products since the 1950s. PFAS are used in a host of products such as food packaging, cosmetics, carpets, clothing, and personal care products like shampoos and dental floss.

What is AFFF?

Aqueous film-forming foam (AFFF) is a type of foam used to fight fires. Fire departments use AFFF to fight liquid-based fires (i.e., those started by oil, gasoline, or other flammable liquids). AFFF is often used in fire department training. To enhance the effectiveness of AFFF, the foam has historically been formulated with PFAS. Including PFAS in firefighting foam allows the foam to spread easily over the gas or oil to cut off the fire's access to oxygen.

Why are PFAS a concern?

While extremely efficient in firefighting, PFAS are also toxic to humans and the environment, even in small amounts. If the foam is not carefully cleaned up after its use, it can seep into the soil and contaminate groundwater and drinking water. AFFF use for training or fire suppression is responsible for nearly all known PFAS contamination in Washington's drinking water.

What is Ecology's role in protecting public health and the environment?

Ecology's AFFF collection and disposal program will provide municipal fire departments with resources to safely dispose of unused PFAS-containing foam.

Environmental Impact Statement

An Environmental Impact Statement (EIS) is a report assessing the likely effects of a proposed action on the environment and public health.

- Government agencies use this tool to:
- Identify and analyze adverse environmental impacts.
- Consider alternative options.
- Suggest measures to reduce or eliminate significant effects.

In this case, we're drafting an EIS to evaluate the potential impacts of firefighting foam collection, storage, transportation, and disposal on public health and the environment, aiming to find a safe and practical method for foam disposal.

Program Description

We're developing a program to help fire departments and other first responders in Washington state collect, transport, and dispose of AFFF stockpile. The program is not specific to a particular site or location, and all municipal fire departments storing AFFF may elect to participate at their individual discretion.

Map: Washington State Fire Departments Participating in Ecology's AFFF Disposal Program.

Source: TRC Companies

Program Alternatives

As the lead agency, we evaluate alternatives for the AFFF Collection and Disposal Program. We look for potential adverse environmental effects on soil, water, air quality, and sensitive biological species and communities. We also consider impacts on public health and safety, disadvantaged communities, and tribal communities.

There are four alternatives, as well as a fifth option of taking no action:

Alternative 1: Approved Leave in Place

Under this alternative, AFFF remains at participating fire stations, with suitable containment approved by Ecology, until acceptable advanced treatment technologies become available.

Alternative 2: Incineration

Under this alternative, AFFF is collected and transported to a selected existing treatment facility for incineration.

Alternative 3: Solidification and Landfilling

Under this alternative, AFFF is collected, and transported to a selected landfill for disposal. AFFF is solidified in concrete and disposed of in containers to prevent contamination of groundwater and soil.

Alternative 4: Class 1 Deep-Well Injection

Under this alternative, AFFF is transported to a selected deep well injection facility and pumped deep into the earth at depths far below drinking water sources.

No Action Alternative

Under this alternative, Ecology would not implement an AFFF disposal program. Individual fire departments would continue to manage the storage and disposal of AFFF.

Affected Environment

In Chapter 3, we address the potential impacts of the proposed AFFF program on public health and the environment.

Each resource section includes information on potential impacts and actions to mitigate those impacts. Ecology further explores mitigation measures in Chapter 4.

To learn more, click the buttons associated with the different environmental resources. To explore the chapters further, click on the links to the EIS at the bottom of each section.

Air Quality

All proposed alternatives could have potential air quality effects, except Approved Leave in Place and No Action alternatives.

Key findings:

The EIS analysis determined that incineration, solidification and landfilling, or deep well injection would not result in significant releases of regulated air pollutants or PFAS.

Potential accident or upset conditions during AFFF transport or disposal operations would not result in significant air quality impacts or PFAS releases.

The proposed program would not result in significant, adverse impacts on air quality. Permit requirements and proper AFFF handling would lessen potentially significant impacts during transport and at disposal facilities.

More information:

Section 3.1 Air Quality

Greenhouse Gas Emissions

All proposed alternatives could involve potential greenhouse gas (GHG) emissions except Approved Leave in Place and No Action alternatives.

Key findings:

None of the proposed alternatives would involve construction-related emissions.

GHG emissions from program activities are very minor compared to the sources of emissions largely responsible for global warming and climate change.

The proposed program would not result in any significant adverse impacts related to greenhouse gas (GHG) emissions. Mitigation would not be required to reduce project impacts.

More information:

Section 3.2 Greenhouse Gas Emissions

Earth and Water Resources

All proposed alternatives could include potential effects on soils, surface water, or groundwater, except for Approved Leave in Place and No Action alternatives.

Key findings:

PFAS could be released from vehicle accidents or spills during transport of AFFF, as well as incineration, solidification and landfilling, or deep well injection activities.

The proposed program would not result in significant, adverse impacts on soil, surface water, or groundwater. Permit requirements and proper AFFF handling would lessen potentially significant impacts during transport and at disposal facilities.

More information:

Section 3.3 Earth and Water Resources

Aquatic Resources

For all program alternatives, risks to aquatic species would be low. Aquatic species include endangered or threatened fish and endangered or threatened aquatic-dependent wildlife like birds and mammals that consume fish.

Key findings:

Fifty-five of the 113 fire stations participating in Ecology's AFFF reporting program are relatively close to streams, rivers, wetlands, or other waters that have potential to support sensitive aquatic species.

Seven of the 16 potential temporary hold facilities are located within 0.25 mile of wetlands or navigable waters under federal jurisdiction. Six of the sites are within 0.25 mile of waters that support sensitive aquatic life or aquatic-dependent wildlife.

The proposed program would not result in significant, adverse impacts to aquatic species. Permit requirements and proper AFFF handling would lessen potentially significant impacts during transport and at disposal facilities.

More information:

Section 3.4 Aquatic Resources

Terrestrial Species and Habitats

All proposed alternatives could have potential effects on terrestrial species and habitats, except for Approved Leave in Place and No Action alternatives.

Key findings:

Proposed disposal facilities are located in remote or industrial areas with little critical habitat.

Incineration of AFFF would not cause population-level ecological effects on wildlife habitat.

Impacts on sensitive wildlife would be less than significant due to the low risk of release of AFFF from the deep well injection.

The proposed program would have no significant adverse impacts related to terrestrial species and habitats. Permit requirements and proper AFFF handling would lessen potentially significant impacts during transport and at disposal facilities.

More information:

Section 3.5 Terrestrial Species and Habitats

Vegetation

All proposed alternatives could have potential effects on vegetation, except for Approved Leave in Place and No Action alternatives.

Key findings:

Proposed disposal facilities are located in remote or industrial areas with little critical habitat.

Incineration of AFFF would not cause population-level ecological effects on vegetation resources.

Impacts on sensitive vegetation communities would be less than significant due to the low risk of release of AFFF from the deep well injection and landfilling.

The proposed project would have no significant adverse impacts related to sensitive vegetation. Permit requirements and proper AFFF handling would lessen potentially significant impacts during transport and at disposal facilities.

More information:

Section 3.6 Vegetation Resources

Human Health and Safety

All proposed alternatives could have potential effects on human health and safety.

Key findings:

People are most likely exposed to PFAS by consuming contaminated food and water or breathing contaminated dust. People who are exposed to PFAS at work or who spend time in areas with local PFAS contamination have higher PFAS blood serum levels.

The risk of an AFFF release for all of the alternatives is low, and in the event of a release, engineering controls and spill response regulations exist to prevent spills from reaching the environment.

The EPA has not yet adopted enforceable PFAS limits in environmental media or drinking water because the human health effects caused by exposure to PFAS are still being studied.

The proposed program would present a low risk of a significant impact on human health and safety. Permit requirements and proper AFFF handling would lessen potentially significant impacts during transport and at disposal facilities.

More information:

Section 3.7 Human Health and Safety

Human Health and Safety

All proposed alternatives could have potential effects on human health and safety.

Key findings:

People are most likely exposed to PFAS by consuming contaminated food and water or breathing swallowing contaminated dust. People who are exposed to PFAS at work or who spend time in areas with local PFAS contamination have higher PFAS blood serum levels.

The risk of an AFFF release for all of the alternatives is low, and in the event of a release, engineering controls and spill response regulations exist to prevent spills from reaching the environment.

The EPA has not yet adopted enforceable PFAS limits in environmental media or drinking water because the human health effects caused by exposure to PFAS are still being studied.

The proposed program would present a low risk of a significant impact on human health and safety. Permit requirements and proper AFFF handling would lessen potentially significant impacts during transport and at disposal facilities.

More information:

Section 3.7 Human Health and Safety

Tribal Resources

All proposed alternatives except for no action have the potential to impact tribal resources.

Key findings:

The risk of impacts to tribal resources from any of the alternatives would be low, given that tribal lands are not located close enough to fire stations, temporary hold facilities, potential transportation routes, or potential disposal facilities.

Ecology would implement collection and transport best practices to minimize potential impacts to tribal operations and activities.

Approved leave in place would have less than significant impacts upon tribal resources. Solidification and Landfilling, Incineration, and Deep Well Injection would have less than significant impacts on tribal resources with mitigation developed in consultation with affected tribes.

More information:

Section 3.9 Tribal Resources

Transportation and Truck Safety

All proposed alternatives could have impacts upon transportation and truck safety.

Key findings:

Construction traffic, road closures, and detours may temporarily increase traffic and congestion on regional and local roads and highways.

The program would require no road construction or improvements, nor would any transportation infrastructure be impacted.

The proposed program would have no significant adverse impacts related to transportation. Measures such as a requirement that AFFF be transported by a licensed hazardous waste hauler will mitigate potential impacts to transportation and truck safety.

More information:

EIS Section 3.10 Transportation and Truck Safety

Environmental Justice

All proposed alternatives have been found to have no impact on environmental justice communities.

Key findings:

Because proposed facilities for each alternative would comply with federal, state, and local laws and permitting requirements, risk of release or accidental upset would be low.

Risk of spill or release of AFFF under proposed alternatives that involve collection and transport activities are not likely to affect communities located along transportation corridors or near proposed disposal facilities.

Disposal through Incineration, Solidification and Landfilling, and Deep Well Injection are less likely to have less than significant impacts upon environmental justice due to their compliance with required permits and their remote locations. Ecology will also require disposal conditions that reduce the likelihood of disposed AFFF coming in contact with communities of color or low-income populations.

Overall, the relative risk of release of AFFF is low. The analysis found the proposed program alternatives would have no significant adverse impacts related to environmental justice and communities of concern.

More information:

Section 3.11 Environmental Justice

Public Services and Utilities

All proposed alternatives have potential impacts upon public services and utilities including police, fire departments, emergency services, and health care.

Key findings:

None of the proposed program alternatives would affect the availability of public services, such as police and emergency services. The AFFF program would not require building or expanding medical facilities, schools, parks, or recreational facilities in any one location in the state.

The use and availability of utility services would differ by utility type and extent of service territory for each utility; however, the AFFF collection and disposal program would not affect the capacity of public service and utility providers.

The EIS analysis found the proposed program would have no significant adverse impacts related to public services and utilities. No additional mitigation is required.

More information:

Section 3.12 Public Services and Utilities

Cumulative Impacts

The EIS analyzes the AFFF Collection and Disposal program's possible cumulative effects resulting from the incremental addition of the proposed AFFF program alternatives to the impacts from past, present, and reasonably foreseeable future actions.

Key findings:

Most potential impacts remain less than significant and do not contribute to cumulative impacts.

The other potential impacts remain less than significant with mitigation and do not contribute to cumulative impacts.

Overall, all potential impacts would be minor, less than significant, or less than significant with mitigation and not contribute to cumulative impacts.

More information:

Chapter 5: Cumulative Impacts

Timeline

2018:

June: Legislature restricts the use of AFFF and personal protective equipment that contains PFAS.

2019:

July: Legislature allocates funds for us to collect, transport, and dispose of AFFF owned by municipal fire departments.

2020:

Sept: Ecology proposes sending AFFF to a federally permitted incinerator and releases a Determination of Non-Significance for public comment.

2021:

Jan: Withdrew decision to incinerate and began to prepare an Environmental Impact Statement (EIS), to evaluate the impacts of the proposed disposal program.

Oct: Hired a contractor to draft the EIS.

2022:

The contractor continued technical analysis on disposal options.

We gathered feedback from tribal and community representatives regarding the EIS.

2023:

Dec: We released a Draft EIS for public comment.

2024:

Feb: After the comment period closes, we will review feedback, make changes, and address substantive comments.

Fall: The EIS is finalized.

Ecology selects the preferred disposal option.

2025:

Winter: Ecology implements the preferred disposal option. **Spring–Summer:** We begin collection and disposal process.